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RE: Notice of Proposed Rulemaking – Docket: 12-268
Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions

> *I am writing with regard to the proposed spectrum re-allocation. While I strongly favor increasing wireless broadband capacity, I believe that there are less traumatic approaches already present in the marketplace that should be encouraged and expanded prior to any proposed spectrum re-allocation.*

Starting from government funded research, what is now known as the 'internet' has become pervasive, but not quite ubiquitous – yet. The remaining gaps are generally rural, or have some form of special circumstance attached. In the mountains of rural upstate New York, cell phone coverage has been slow to arrive, and remains spotty & unreliable. At our house, we have installed an internet based cell phone extender. This was a low cost solution to what the cellular carriers clearly did not see as a priority – coverage at the house. *A further consolidation of mobile capacity is not likely to encourage the carriers to address any one-off situations, such as our house as described above.* **Please explore policies that facilitate and promote individuals directly addressing their own specific circumstances.**

Internet access over Wi-Fi has become extensive. Some smart phones can serve as a Wi-Fi hot-spot, and/or surf the internet over a Wi-Fi link. Wi-Fi technology has been extensively field tested in real live deployments, and it provides very dense re-use of the spectrum involved. *Centrally owned and managed municipal Wi-Fi deployments have generally had difficulties becoming profitable. In many cases the legal fees to address the opposition presented by potential competitors has been fatal.* **Please explore policies that promote phone and Wi-Fi interconnectivity, and policies that lessen the barriers to entry for those who want to provide some form of 'public' style Wi-Fi access.**

One ISP in England provides its customers with Wi-Fi routers that also provide public access. The local customer has priority access, but any unused capacity is then made available to other customers who might be near by. By this approach, the ISP avoids many of the deployment & service issues (and expenses) often associated with municipal Wi-Fi deployments.

While there will always be a need for longer range links, such as those presently provided by the cellular carriers, the vast majority of mobile data usage could be addressed by existing Wi-Fi technology – with policies that facilitate and encourage local *ad hoc* deployments. Many restaurants, coffee houses, book stores, camp grounds, truck stops, … already provide Wi-Fi access – *often for free.*

Unfortunately, many ISP's usage policies prohibit retail customers from providing public access – without an (unduly) expensive upgrade. More efficient usage of this capacity could be encouraged through micro-payments, or reciprocal transit agreements, or perhaps some other mechanism yet to be developed. **Please explore policies that promote better economics for more efficient usage of the existing capacities already deployed.**

The present uncertainties regarding the proposed spectrum re-allocation are harmful to low power TV operators, and in turn, the communities they serve.

The uncertain status of low power TV spectrum is making the financing of new low power build-outs harder to obtain. Even with the general assurance that some frequency will be available for a low power operator, any uncertainty regarding exactly which channel the broadcast equipment must eventually utilize presents an added risk, and disincentive for a present build-out.

As many of the low power licenses are in rural communities, any delays in build-out mean delays before the community is served. Many of these rural communities have ample available spectrum, but lack carriers interested in serving all but the most densely populated area(s) of the communities. **Please explore policies that would quickly relieve the uncertainties in communities where there is already ample spectrum to meet projected demand.**

While the majority of the TV viewing population watches at least some video over the internet, this is not (presently) the most efficient means of delivery. Most internet traffic is inherently point-to-point, which is not an efficient approach for broadcast usage. Video 'channels' delivered over the internet don't require an individual frequency allocation, (but instead draw from the shared pool.) Additional 'low power TV' style of broadcasts could be distributed over the internet. (For example, the local high schools football games.) Unfortunately, the mismatch between point-to-point communications, versus broadcast usage will unneededly consume bandwidth – and when wireless – spectrum. Multi-cast technology already exists to better match internet communications to a broadcast style usage. **Please explore policies that promote the deployment of more (and better) multi-cast infrastructure.**

Press coverage regarding the spectrum reallocation often raises the question of the priority being given to raising revenue via the reallocation.

Why sell when you can rent? On all but the most local scale, ownership of wireless capacity is already highly concentrated. In any concentrated oligarchy, members are often more interested in the status quo e.g. keeping others out, rather than innovation. As many businesses feel that something like the 80-20 rule applies to their customers (wherein 80% of the revenue comes from 20% of the customers) they often focus most heavily of the 20% that delivers the most financial impact. *This directly implies that the other 80% are not getting the same level of service.* As described in the above, there are many special circumstances that are hard for a large company to address individually. **Please explore policies that facilitate small operators entering the market, and potentially growing to become large operators.** This will promote innovation, and better utilization of all of the scarce resources involved.

As described above, the grass roots deployment of Wi-Fi demonstrates that the *technology* does not need economies of scale to realize affordable deployment. **Please explore policies that break the available spectrum into both large scale, and small scale protected allocations.** Having only large scale chunks as protected spectrum, does not provide any stepping stone from the very small scale utilization of unprotected spectrum.

Please explore policies that will promote open and seamless interoperability in all of the above. This will promote innovation, and in turn, the economy.

Thank you.
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